

The Feasibility of Publishing Research Studies of Grade 10 STEM Students of Las Piñas National High School During the Pandemic.

An Action Research by

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Special Science Teacher I

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ABSTRACT

The pandemic forced the educational landscape to shift its modality into online and hybrid learning-very minimal preparations to continue to offer education for all the learners. In Las Piñas National High School-STEM, although hybrid learning is being offered, some subjects are still hard to translate in online modality, one of which is research. This study entitled, "The Feasibility of Publishing Research Studies of Grade 10 students of Las Piñas National High School JHS-STEM Program during the Pandemic", aims to determine the feasibility of producing quality STEM research while the learners were at home. The respondents of this study were determined through opportunity sampling method from grade 10 STEM students from the school year 2020-2021. Overall result showed that, 70% of the respondents still find it feasible to produce research studies amidst the pandemic and the major shift in the modality of learning. The researcher then concludes, despite the great effect of the pandemic, STEM students were more resilient and innovative in conducting and publishing their respective studies. As the next academic year still rolling, it is best to implement the survey questionnaire to the next batch of grade 10 STEM, to see if there have been any significant changes happened as the subject research continues to adapt in the hybrid learning modality.

RATIONALE

In December 2019, an outbreak of a novel coronavirus, known as COVID-19, occurred in China and has spread rapidly across the globe within a few months. COVID-19 is an infectious disease caused by a new strain of coronavirus that attacks the respiratory system (World Health Organization, 2020)

It became a worldwide health crisis where everyone were literally affected regardless of age, gender and social status. The world stopped and economy collapsed as all businesses shutdown operations. For instance, most countries closed the schools, colleges and universities to contain the spread of the virus. The crisis became a dilemma not only to the health sectors but also to the education sectors. (Ancheta, 2020). It includes the education system that faced the unprecedented health crisis that has shaken up its foundation. Thus, various governments across the globe have launched a crisis response to mitigate the adverse impact of the pandemic on education. The Philippines shifted into blended learning modality to cater the underprivilege with little to no access on the internet and the rest of the learners.

Moreover, in Las Piñas National High School STEM program, blended instructions were also utilized—this included even the special subjects offered to the learners, one of which is Research. Given the nature of STEM research, being and mostly experimental by design, the subject faced a major challenge to shift its implementation alongside the rest of the course subjects. That is why, this study aims to define the rate of feasibility of publishing a research study of the grade 10 STEM students at Las Pinas National High School during the pandemic. This will help in the improvement of the approaches used in implementing research subjects for stem students in junior high school for as long as the same blended learning is being implemented in the Philippines by the Department of Education.

ACTION RESEARCH QUESTIONS

- What factors were greatly affected in conducting research of grade 10 STEM students with the shift of educational landscape that was caused by the pandemic?
- What is the percentage of accomplishment of grade 10 stem students in publishing their research studies?
- How feasible it is to produce a research paper for grade 10 students of LPNHS STEM Program during the pandemic?

INNOVATION, INTERVENTION, AND STRATEGY

STEM Research is a course subject that requires laboratory works, consultation with professionals, and a lot of ground works—from collection of materials to experimentation. When the pandemic hit us, all these subject requirements shifted alongside the modes of delivering the lesson.

The course subject used flipped classroom setup to cope with the situation. Since the school system only allows teachers to conduct (1) one synchronous class per week in each subject, the subject teacher utilized then the asynchronous time to let the students plan, execute, and finish their research studies. All the synchronous session were used for consultation from the plans to experiment and research designs, until the writing of their manuscripts. Even looking for qualified scientists and consultation with them must be done virtually. Basically, all the ground works were performed virtually, asynchronously, and separately—in context of the group experiment and collection of data by the students.

The researchers finished their manuscripts and was able to conduct the final defense, all on their own. This is a check up on their overall experience in research, any comments and evaluation given by them will be used in the development of the intervention and strategy in teaching and conducting research studies for the next academic year.

PARTICIPANTS

The target respondents to this action research were the grade 10 students of Las Piñas National High School under the stem program of school year 2020-2021. The researcher used opportunity sampling method in collecting responses from former grade 10 STEM students. There were 24 respondents for this study who were all in Grade 11-with 17 females and 7 males.

DATA COLLECTION

The respondents were given a Google Form link to answer the surveyquestionnaire. It contains 3 parts: first, is for participation consent, next is the profile of the respondents, last is the actual survey content intended for this action research. The respondents were given a week to participate in the study.

Since this is a survey-questionnaire, data were interpreted quantitatively and qualitatively-for their relevant and specific experience as an anecdote to support their claims and answers in the questions stated in the questionnaire.

The researcher defined 6 key areas for the students to evaluate:

- 1. Communication with group mates
- Communication with the research adviser
 Communication with Qualified scientist
 Access to laboratory equipment

- 5. Access to variables and other necessary materials
- 6. Access to public information places

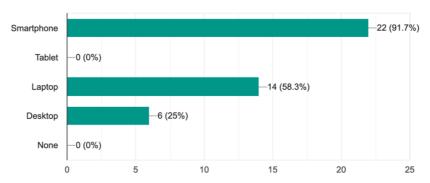
The remaining parts on the survey was to define other factors that might affected the feasibility of their publication and the overall assessment of feasibility in publishing a research study.

Action Research Survey: https://tinyurl.com/ActionResearchSurveyLPNHS

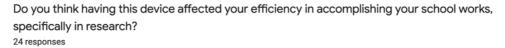
DISCUSSION OF RESULTS AND REFLECTION

Table 1. Device used by the students.

What device do you have when the system shifted into blended learning? ^{24 responses}



With the 24 total number of respondents of this study, all of them have 1 of more device that they use in attending online classes and doing their school works. 2 out of 24 has a smartphone, a laptop and a desktop. 10 have both smartphone and laptop. 4 have both smartphone and desktop. 6 has smartphone only. And 2 uses laptop only.



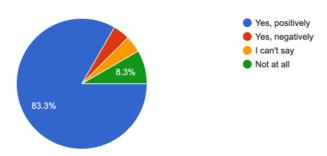


Figure 1. Assessment of the Efficiency with the Device Used by the Students

This question is to mainly consider if the device used by the students plays a factor with their responses in the succeeding ratings. 20 responded that their devices affect their work efficiency positively. 2 answered, not at all. 1 responded that it affects them negatively. And 1 cannot define its effect on

their device's efficiency. Having these responses, it is safe to discard the type of device and the device itself in the possible external factors that plays negatively in the feasibility of publishing their research studies.

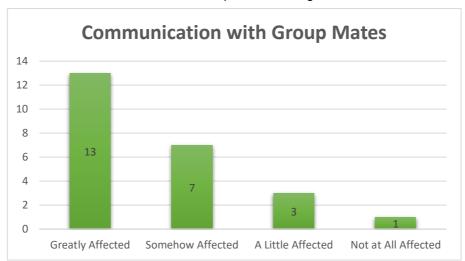


Table 2. Communication with Group Mates Rating

The first factor defined was the communication with their group mates. There were 13 of them said that it was greatly affected. Then, 7 answered somehow affected. 3 selected the option a little affected and 1 responded not at all. The result on this table implies that their communication with their group mates were compromised due to the situation, limitations, and restrictions.

Communication with the Research
Adviser

12
10
8
6
4
7
2
O
Greatly Affected Somehow Affected A Little Affected Not at All Affected

Table 3. Communication with the Research Adviser Rating

The table shows that majority evaluated that their communication with their research adviser was somehow to greatly affected. And very little responded that it was not at all affected.

It may have something to do with the fact that communications with their adviser can only be done via email and/or virtual conferences unlike during the physical setup.

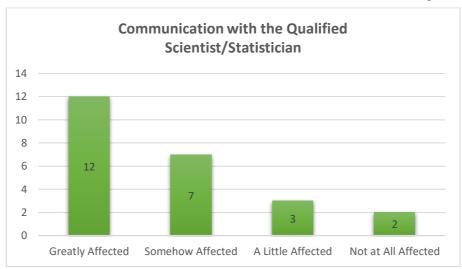


Table 4. Communication with the Qualified Scientist/Statistician Rating

In table 4, it clearly represents that a big number of respondents really find their communication with the Qualified Scientist or Statistician to be somehow to greatly affected. With the scientists also adjusting in the situation, in addition to the fact that laboratories were also inaccessible at the time.

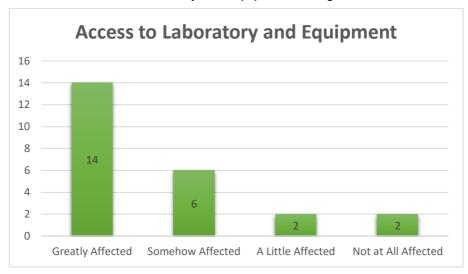


Table 5. Access to Laboratory and Equipment Rating

The access to laboratory and/or lab equipment was also somehow to greatly affected according to the response of the participants. This is a very crucial factor to the researchers, because the type of research they're expected to produce is an experimental design or any design as long as it was a STEM related topic.

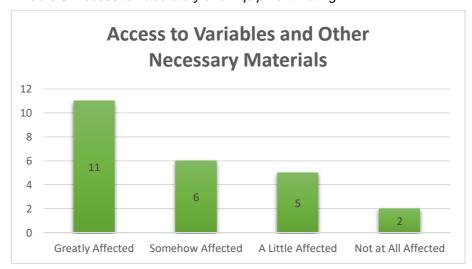


Table 6. Access to Laboratory and Equipment Rating

The respondents' access to variables and other necessary materials were a little to greatly affected. This is mainly because of the restriction implemented by the government from going outside—to mitigate the spread

of the virus. Thus, research were not free to go out and purchase the things they need to conduct their experiments. However, they were instructed to utilize the materials available from their households.

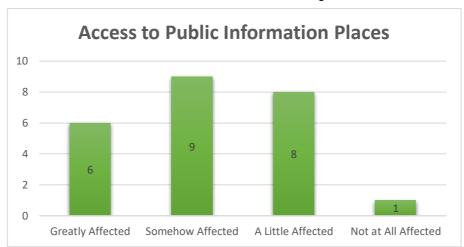


Table 7. Access to Public Information Places Rating

The table shows that most of the respondents were only little to somehow affected with access to public information places. Since most of the resources are also available online, this is the least affected among the identified factors from this study.

Other factors such as, time-management and the bandwidth of their internet connection were identified by the respondents.

Overall Feasibility of Publishing A Research
Study

20

15

10

5

0

Not Feasible

Not Feasible

Not Feasible

Not Feasible

Fairly Feasible

Feasible

Feasible

Very Feasible

Table 8. Overall Rating on the Feasibility of Publishing A Research Study

The respondents answered that it is feasible to publish a research study amidst the pandemic.

In summary, all factors identified by the researcher, it seems that all of them affected the feasibility of producing quality research studies by the student-researchers. The fact that the whole grade 10 level of STEM students were able to finish and defend their studies at the end of the academic year, made it still feasible, nonetheless.

ACTION PLAN

The research teacher is planning to implement some interventions on implementing the research subject in the next academic year. Here are the possible interventions that may help improve the feasibility even further:

- 1. Increase the number of members each group.
- 2. Broaden the options regarding the field of study the research could explore.
- 3. Tie-up with the assigned mathematics teacher of the grade level to secure a statistician and master teacher as qualified scientists.

FINANCIAL REPORT

The research did not require any budget necessary.

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APPENDIX A

DECLARATION OF ANTI-PLAGIARISM

- I, <u>ERNNE JOHN F. DOLOR,LPT.</u> understand that plagiarism is the act of taking and using another's ideas and works and passing them as one's own. This includes explicitly copying the whole works of another person and/or using some parts of their own without proper acknowledgment and referencing.
- I, hereby attest to the originality of this research proposal and have cited properly all references used. We further commit that all deliverables and the final research study emanating from this proposal shall be of original content. We shall use appropriate citations in referencing other works from various sources.
- I, understand that violation of this declaration and commitment shall be subject to consequences and shall be dealt with accordingly by the Department of Education.

PROPONENT: ERNNE JOHN F. DOLOR, LPT.

SIGNATURE:

DATE: MARCH 20, 2022

APPENDIX B

QUESTIONNAIRE

Section 1 of 3			
The Feasibility of Publishing Research Studies of Grade 10 students of Las Piñas National High School JHS-STEM Program during the Pandem AN ACTION RESEARCH BY ERNNE JOHN F. DOLOR, LPT. This form is automatically collecting emails for DepEd Las Pinas users. Change settings		*	•
:::			
Consent Form		Û	:
Involve. The purpose of this study is to evaluate the feasibility of conducting a research study during the pandemic under the STEM program of Las Piñas National High School. After answering the survey, the data collecte thorough assessments that will take a big part in planning the implementation of research subject in the taxon the temperature of the same program of this research is very small, the researcher is really aiming to have respondents in agreeing to participate. This will help the succeeding batches of the same program have a approach in research. Your responses in this research will be anonymous. Every effort will be made by the researcher to preserv so, kindly answer with honesty every question or item in this survey should you agree. If you have any questions regarding the survey, your rights as a research participant, or if problems arise, contact the researcher, ERNNE JOHN DOLOR, LPT, at ernnejohn.dolor@depedlaspinas.ph or ernnejohn.dol	d will under upcoming states of the better and e your con	ergo a school ye e d improve fidentialit	ar. d
Do you agree to participate in this research survey?		*	
○ YES, I AGREE			
O NO, I DISAGREE			
After section 1 Continue to next section			

Section 2 of 3	
Respondent's Profile X Description (optional)	:
Name (optional) Short answer text	
Age Short answer text	*
Sex Male Female	*
Current grade level Grade 11 Taking a gap year from schooling	*
Did you finish your grade 10 under the STEM program of LPNHS? Yes No	*

Section 3	of 3	
amio	rey on the Feasibility of Publishing Research dst Pandemic ion (optional)	× :
check all	vice do you have when the system shifted into blended learning? that applies artphone	*
Lap	top	
Nor	ktop ne	
Do you research	hink having this device affected your efficiency in accomplishing your school works, specifically	in *
O Yes	positively	
O Yes	negatively	
O I ca	n't say	
O Not	at all	

	Greatly affected	Somehow affected	A little affected	Not at all affected
Communication wit	\circ	\circ	\circ	\circ
Communication wit	\circ	\circ	\circ	\circ
Communication wit	\circ	\circ	\circ	\circ
Access to laborator	\circ	\circ	\circ	\circ
Access to variables	\circ	\circ	\circ	\circ
Access to public in		0	\bigcirc	\bigcirc
Are there any other factor them in the space provide Long answer text		lity of the publication o	f your research study	? Please define *
Are there any other factor them in the space provide	d below. ng not feasible, to 4 a	ıs being very feasible, ho	ow likely it is to prod	. rease define
Are there any other factor them in the space provide Long answer text From the range of 1 as bei	d below. ng not feasible, to 4 a	ıs being very feasible, ho	ow likely it is to prod	. rease define
Are there any other factor them in the space provide Long answer text From the range of 1 as bei	ng not feasible, to 4 a	us being very feasible, ho unswer from your persor	ow likely it is to prod nal experience.	. rease define

APPENDIX C

RESPONSES

Age	Sex	Current grade level	Did you finish your grade 10 under the STEM program of LPNHS?	What device do you have when the system shifted into blended	Do you think having this device affected your efficiency in	Here are some factors that might or might not be affected the feasibility	Here are some factors that might or might not be affected the feasibility	Here are some factors that might or might not be affected the feasibility	Here are some factors that might or might not be affected the feasibility	Here are some factors that might or might not be affected the feasibility of publishing a research	Here are some factors that might or might not be affected the feasibility	Are there any other factors affected the feasibility of the	From the range of 1 as being not feasible, to 4 as being very feasible, how likely it is to	Do you have any relevant experience's that you would like to share as an anecdote to
16	Female	Grade 11	Yes	Smartphone, Laptop	Yes, positively	Greatly affected	Greatly affected	Greatly affected	Somehow affected	Greatly affected	Greatly affected	None	2	It is hard to conduct an experiment during pandemic.
17	Female	Grade 11	Yes	Smartphone, Laptop	Yes, positively	Greatly affected					A little affected	have no choice but to change the variables of our study since we had a hard time acquiring the materials we need for our study. Also, we were not able to have valid lossings due to the same reason. Workloads from other subjects also greatly affected us while working in our study because of the limited time.	2	note
16	Fonzio Fernizio	Grade 11 Grade 11	Yes	Smartphone, Lapto Smartphone, Desktop	Yes, posthwly I can't say	A 18he affected Greatly affected	Somethyw Affected Somethyw Affected	Greatly affected Greatly affected	Greatly affected Greatly affected	Greatly affected Somehow affected	Somehow affected AitSie affected	NIA. Sudden lookdowne made it diffout to perform experiments as a their	2 2	It was hard to communicate with my communicate with my respect, and since we do not meet flow to face, my messages. It was also hard to knep hast, my messages. It was also hard to knep hast, the communicate with the communicate with an obey the communicate with short of the proposition as well an obey the communicate with short as braned due to the magnitude, chicing measured in the size of communication of the biss of communication of the biss of communication of well as the short of which is well as the properties of the properties of the properties the properties the properties the properties the properties the properties the properties the properties the properties the properties the properties the properties the properties the properties the properties the properties the properties the the the the properties the the the the the the the the
17	Female	Grade 11	Yes	Smartphone, Laptop, Desktop	Yes, positively	Somehow affected	Somehow affected	Somehow affected	Greatly affected	Somehow affected	Greatly affected	Transportation and validation. We are unable to validate our plant variable on UST due to mode of transportation being limited and labs undergoing lockdowns.	3	There is a problem reaching out certain labs like UST due to lookstowns.
Age	Sex	Current grade level	Did you finish your grade	What device do you	Do you think having this	Here are some factors	Here are some factors	Here are some factors	Here are some factors	Here are some factors	Here are some factors	Are there any other	From the range of 1 as	Do you have any
16	Female	Grade 11	Did you faith your grade to for under the SERS of the service of LPRHS? Yes	how when the system shallow in the s	device affected your control of the	that might or might not used to the control of the	that right or might not be absoluted in the beautiful of published a received of published a received Demention affected. Somethow affected.	that might correlling to the control of the control	that might or might not used to the control of the	Here are come factors that right or might a might or might or might or might of the displace the facilitation of publishing a measure of publishing a measure of the displacement of the d	that might or might one of the beautiful or might one of the seability of publishing a research of publishing a research Greatly affected.	Are there any other footbody of the footbody afforcing afforcing the footbody of the footbody	being not headles, to 4 as a being not headles, to 4 as a being very headles, to 4 as a being very headles, the white it is to 10 as a being very headles, and the second	Doyou have any membrane as a membrane as a professional as a professional as a membrane as a membran
												Connection		Publishing a research study jest school year was feasible bucause somehow I am able to communicate well with my groupmates. There might be some life problems in communication sometimes, but we still manage to publish it.
17	Female	Grade 11	Yes	Smartphone	Yes, positively	Greatly affected	Somehow affected	A little affected	Somehow affected	Greatly affected	A little affected	Lack of options, we wer not able to pursue some fields because of the pandemic.	9 3	manage to publish it. The hard part was communicating with your groupmates, but it was still feasible
17	Male	Grade 11	Yes	Smartphone, Deviktrp	Yes, positively	Somehow affected	Greatly affected	Greatly affected	Greatly affected	Somehow affected	Greatly affected	parterior. NA	3	self Seable Considering research studies search the lead considering research studies search the lead consideration of the
16	Mole	Current grade level	City purchase purchase programme of Chapters (City City City City City City City City	Simeriphone, Laptop	Yes, postbody	Greaty affected	Greatly affected	Not at all affected	Not at all affected	New as sum factors from the major or region of publishing a research of publishing a research of the major o	Not at all affected	Famini tink of other facility.	From the renge of 1 mb being on Manifest (1994) and the second of the se	Depth has not yet to be a second to
17	Female	Grade 11	Yes	Smartphone, Laptop	Yes, positively	Greatly affected	Greatly affected	Greatly affected	Greatly affected	Greatly affected	Somehow affected	NIA	2	It is not that feasible to produce a research study since a lot of things are need to be done physically. It's hard to produce it through online.
	Female	Grade 11		Smartphone, Laptop, Desktop	Yes, positively		A little affected	Somehow affected	Greatly affected	A little affected	Somehow affected	Time of delivery of materials and financial aspects.	3	
17	Fornale	Grade 11	Yes	Smarlphone	Not at all	Somehow affected	Not at all affected	cometow affected	Somehow affected	A little affected	somehow affected	Some of my groupmate are afraid to go outside because they are scare to effected		It's somehow difficult to communicate with some of my groupmates cause not all the time they are not ordine.
17	Fernale	Grade 11	Yes	Smartphone, Laptop	Yes, positively	Greatly affected	Not at all affected	Greatly affected	Serrehow affected	Somehow affected	Greatly affected	Other responsibilities inside the household may interfer with southeast, therefore having limited time.	3	not cream. As a research during the height of the penderric, articipating for alert levels to go down was such a stuggle since I needed to disserrinate the tasks during experimentation to my groupmabo. Alert levels we're really a hit or miss most of the time but I'm glad we successfully created a paper despite hindrances.

Age	Sex	Current grade level	Did you finish your grade 10 under the STEM program of LPNHS?	What device do you have when the system shifted into blended learning?	efficiency in	that might or might not be affected the feasibility	Here are some factors that might or might not be affected the feasibility of publishing a research	that might or might not be affected the feasibility	that might or might not be affected the feasibility	be affected the feasibility	that might or might not be affected the feasibility	Are there any other factors affected the feasibility of the publication of your	From the range of 1 as being not feasible, to 4 as being very feasible, how likely it is to	Do you have any relevant experience/s that you would like to share as an areodote to
17	Male	Grade 11	Yes	Smartphone, Desktop	Not at all	Greatly affected	Greatly affected	Greatly affected	Greatly affected	Alitie affected	A little affected	None	3	Collaboration was a lot harder. We were also limited in choosing our topic be because we were unable to access laboratories and testing sites
17	Female	Grade 11	Yes	Smartphone, Laptop	Yes, positively	Greatly affected	Somehow affected	Somehow affected	Greatly affected	Somehow affected	A little effected	Conducting a qualitative research is more feesible than having a quantitative research. This must be due to the testings and experiments needed to be done in quantitative research. They are more complex and requires a lot of professional equipments and qualified scientists.	3	The research that we conducted focuses on the qualities of the variable that we had, making it easy for us to do the experiment and analyze the results. However, since it is focused on the qualities it became quite hard in the statistical analysis of our paper.
17	Female	Grade 11	Yes	Laptop	Yes, positively	Greatly affected	Greatly affected	Somehow affected	Greatly affected	Greatly affected	Somehow affected	Lack of device	2	It's hard to communicate with groupmates if not all the members have a device to use.
16	Female	Grade 11	Yes	Leptop						Greatly affected	Greatly affected	-Physical group colleboration contributed in a contribute	3	In my personale experience, conducting a research study during a research study during the paradient removed and a paradient removed and a paradient removed to paradient removed to paradient removed to paradient response removed by the paradient removed by the paradient removation similarities are only a removation similarities on one study. If the book contains the paradient removation similarities on one study. If the book contains the paradient removation is removed to the paradient removation is removed to the paradient removation re
17 years old	Female	Grade 11	Yes	Smartphone	Yes, positively	Somehow affected	Somehow affected	Greatly affected	A little affected	Greatly affected	Somehow affected	none	3	We had difficulty in finding materials such as the bacteria to use in our research study. Some are not available for the outsider of the university while some are not accepting our inquiry.
17	Male	Grade 11	Yes	Smarlphone	Yes, positively	A little affected	A little affected	A little affected	Somehow affected	Not at all affected	A little affected	No, because we are still able to publish our research study.	3	The pandernic mode it harder to conduct a research study because every actions needed is limited but due to the active participation of members, we were able to firish our group's research study.
Age	Sex	Current grade level	Did you finish your grade 10 under the STEM program of LPNHS?	What device do you have when the system shifted into blended learning?	Do you think having this device affected your efficiency in	that might or might not	that might or might not	that might or might not be affected the feasibility	that might or might not be affected the feasibility	Here are some factors that might or might not be affected the feasibility	that might or might not be affected the feasibility	Are there any other factors affected the feasibility of the	From the range of 1 as being not feasible, to 4 as being very feasible, how likely it is to	Do you have any relevant experience/s that you would like to
17	Female	Grade 11	Yes	Smartphone, Laptop	accomplishing your Yes, postively	Greatly affected	Greatly affected	Greatly affected	Greatly affected	Greatly affected	of publishing a research Somehow affected	Time management, since the work local since the work local doubles its a lot more hard and challenging to manage my time as a student and as a tean	3	share as an are-code to Since working together as a group was very challenging last by the states a lot more time takes a lot more time takes a lot more time finish our task, I think hat, that lost ocernus/ication or the difficulty to communicate with your groupmake was the biggest reason why I rate the question stown as 34 high above a 34 high and the properties of the properties the properties of the properties the propertie
17	Fernale	Grade 11	Yes	Smarlphone	Yes, regatively	Sometrow affected	A little affected	Scrnshow affected	Greatly affected	Alitie affected	A little affected	I think the effectivity and eligibility of the study also was affected since we were limited on many physical things and productive participation of each group members		Since it was the earlier time of panderie, the rules were more strict than it is now so meeting with my group members was very difficult and we can't seem to meet on our agreed time, thus affecting our time table and plans.
17	Male	Grade 11	Yes	Smartphone, Laptop	Yes, positively	Greatly affected	Somehow affected	Greatly affected	Somehow affected	Somehow affected	Somehow affected	It also had a big impact on the productivity of researchers/students.	3	Our communication with our group members has been greatly hindered, particularly when we have meetings because we do not all have the same time availability.
17	Male	Grade 11	Yes	Smartphone	Yes, positively	A little affected	A little affected	A little affected	A little affected	A little affected	A little affected	Communication with groupmates	3	Based on experience it can be done just very hard